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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/057,206

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Robert J. Small

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EXAMINER

MARCHESCHI, MICHAEL A

ART UNIT

PAPER NUMBER

1755

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

12/28/2006

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/057,206

Applicant(s)

SMALL ET AL.

Examiner

Michael A. Marcheschi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 77-106 and 108-139 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 77-106, 108-120, 122 and 125-139 is/are rejected.
- 7) ☒ Claim(s) 121-124, 138 and 139 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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Applicants are reminded that claim 101 is defined as “10” (see page 5 of the claims listing).

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 94-106 and 108-137 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 94 is indefinite as to the limitation “wherein said substrate a dielectric material” because it does not make sense.

Claim 112, 135, 136 and 137 are indefinite as to the limitation “first (alumina) abrasive” because this implies that a second (alumina) abrasive is present but the claims do not define any second (alumina) abrasive.

The other claims are indefinite because they depend on indefinite claims.

Claims 77-93, 112-120, 125-130 and 132-136 are rejected under 35 U.S.C. 103(a) as obvious over Moeggenborg et al. (100) in view of Fang (227) and Dirksen et al., alone or further evidenced by Moeggenborg et al. (116).

Moeggenborg et al. (100) teach in the abstract and column 2, line 50-column 4, line 60, a polishing composition for polishing a noble metal (i.e. composition in contact with a noble metal substrate), said composition comprises an abrasive (alumina) and periodic acid. It is shown that

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a combination of abrasives can be used thus reading on the claimed suspension agent (i.e. another abrasive). The amounts for the abrasive and periodic acid are defined.

Fang teaches in column 5, lines 45+, that in polishing compositions, it is conventional to use a pH adjustor to achieve the desired pH or buffer the pH of the composition.

Dirksen et al. teach in section [0008] and section [0020] that surfactants and organic acids are well known conventional additives to be added to noble metal polishing compositions.

Moeggenborg et al. (116) teaches in section [0024] that polishing compositions for polishing noble metals have a pH of 2-7 (platinum) or 5-10 (ruthenium or iridium).

Moeggenborg et al. (100-primary reference) teaches amounts for the periodic acid and it is the examiners position that when said amounts are calculated in terms of moles/kg, said amounts will encompass the claimed amounts. If applicants wish to argue the claimed amounts, burden is upon applicants to show the contrary to the above statement (i.e. show that the reference range is not within the range of the claimed amounts). This reference also defines amounts for the components and it is the examiners position that the combined amounts defined by the reference will render a substrate substantially planar, thus making this limitation obvious. In view of this, no patentable distinction is seen to exist between the reference composition and the claimed composition in the absence of any evidence showing the contrary. With respect to the characteristics (claims 92 and 93), since the composition is the same and is used to polish the same substrate, these characteristics are expected and therefore obvious because the same polishing composition is expected to provide the same polishing characteristics to a substrate upon polishing. Although Moeggenborg et al. (100) does not literally define the pH (claims 82-83), this does not preclude the material of the reference from having this characteristic. It is

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therefore the examiners position that since the reference fails to mention any specific pH (criticality), this (the absence of any such limitation) constitutes a broad teaching of pH values, as long as the final polishing composition is obtained. In view of this, it can be reasonably interpreted that the claimed pH is encompassed by the broad teachings according to this reference in the absence of any evidence showing the contrary (criticality). This is apparent because all polishing compositions have a pH. In addition, the pH of the composition is dependent on the substrate to be polished and as is shown by Moeggenborg et al. (116), when the substrate to be polished is a noble metal, the pH of the composition is defined as 2-7 for platinum or 5-10 for ruthenium or iridium. In view of this, one skilled in the art would have appreciated the pH values required for polishing a noble metal according to Moeggenborg et al. (100). With the pH being obvious, one skilled in the art would have found it obvious to use a pH adjusting agent (claims 84-85) because the concept of using such an agent in polishing compositions is clearly shown by Fang in order to produce a polishing composition having a specific pH. In other words, the use of a pH adjustor is well within the level of ordinary skill in order to produce a composition having the desired pH. It is the examiners position that use of conventional polishing additives, such as a surfactant and an organic acid (suspending agent defined by claims 86-87), would have been well within the level of ordinary skill in the art in order to adjust the properties of the composition sought. These conventional additives for noble metal polishing compositions are clearly shown by Dirksen et al.

With respect to claims 112-120, 126, 127, 129, 130 and 132-134, the combination as defined above teaches the claimed invention. Although "consisting essentially of" is used and Moeggenborg et al. (100) uses additional components, no distinction is seen to exist because it is

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the examiners position that these components will not materially effect the basic and novel properties of the composition and thus are still within the scope of the claims. Burden is upon applicants to show that this additional component will materially affect the basic and novel properties of the claimed composition. With respect to claim 125, the primary reference teaches that the abrasive can be a mixture of alumina and silica and this broadly encompasses any type of silica, including colloidal silica, thus the composition can contain all of the claimed components, irrespective of the purpose of said components. With respect to claim 128, Fang teaches that the pH adjustor (obvious for the above reasons) can be succinic acid, thus the composition can contain all of the claimed components, irrespective of the purpose of said components. With respect to claims 135-136, the primary reference teaches that alumina can be used and it is the examiners position that this reads on any alumina form absent critical evidence.

Claim 131 is rejected under 35 U.S.C. 103(a) as obvious over Moeggenborg et al. (100) in view of Fang (227) and Dirksen et al., alone or further evidenced by Moeggenborg et al. (116), as applied to claim 112 above and further in view of Beitel et al. (208).

Beitel et al. teaches in claim 16 that substrates based on iridium oxide are known to be polished with an abrasive polishing slurry.

With respect to the specific substrate (iridium oxide), Moeggenborg et al. (100) states that the substrate can be any suitable substrate (column 4, lines 50-51). This suggests to the skilled artisan that any known substrate can be polished and thus the polishing of a substrate comprising iridium oxide would have been obvious to the skilled artisan because this type of substrate is known to be polished with an abrasive polishing slurry, as shown by Beitel et al. The

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motivation for this combination is defined by Moeggenborg et al. (100) in the statement that states any suitable substrate can be polished.

Claim 137 is rejected under 35 U.S.C. 103(a) as obvious over Moeggenborg et al. (100) in view of Fang (227) and Dirksen et al., alone or further evidenced by Moeggenborg et al. (116), as applied to claim 112 above and further in view of Lack et al. (264).

Lack et al. teaches in section [0052] that a mixture of alpha alumina and gamma alumina is a known abrasive for polishing compositions.

With respect to claim 137, the use of a mixture of alpha alumina and gamma alumina is obvious to the skilled artisan because this mixture is notoriously known to be used as the abrasive in polishing composition, as shown by Lack et al. and Moeggenborg et al. (100) teaches that any suitable abrasive known in the art may be used. Although Lack et al. is not directed to polishing noble metals, the concept of using two different alumina forms is known, irrespective of what it is used to polish.

Claims 94-106, 108-109 and 111 are rejected under 35 U.S.C. 103(a) as obvious over Moeggenborg et al. (100) in view of Fang (227) and Dirksen et al., alone or further evidenced by Moeggenborg et al. (116) and further in view of Klein et al. (316).

Klein et al. teaches in claim 38 and section [0028] that substrates comprising a noble metal layer and a dielectric layer are known to be polished with an abrasive/oxidizer polishing slurry.

With respect to the specific composition, Moeggenborg et al. (100) teaches amounts for the periodic acid and it is the examiners position that when said amounts are calculated in terms of moles/kg, said amounts will encompass the claimed amounts. If applicants wish to argue the claimed amounts, burden is upon applicants to show the contrary to the above statement (i.e. show that the reference range is not within the range of the claimed amounts). In view of this, no patentable distinction is seen to exist between the reference composition and the claimed composition in the absence of any evidence showing the contrary. With respect to the characteristics (claim 108), since the composition is the same and is used to polish the same substrate, these characteristics are expected and therefore obvious because the same polishing composition is expected to provide the same polishing characteristics to a substrate upon polishing. Although Moeggenborg et al. (100) does not literally define the pH (claim 98), this does not preclude the material of the reference from having this characteristic. It is therefore the examiners position that since the reference fails to mention any specific pH (criticality), this (the absence of any such limitation) constitutes a broad teaching of pH values, as long as the final polishing composition is obtained. In view of this, it can be reasonably interpreted that the claimed pH is encompassed by the broad teachings according to this reference in the absence of any evidence showing the contrary (criticality). This is apparent because all polishing compositions have a pH. In addition, the pH of the composition is dependent on the substrate to be polished and as is shown by Moeggenborg et al. (116), when the substrate to be polished is based on a noble metal, the pH of the composition is defined as 2-7 for platinum or 5-10 for ruthenium or iridium. In view of this, one skilled in the art would have appreciated the pH values required for polishing a noble metal according to Moeggenborg et al. (100). With the pH

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being obvious, one skilled in the art would have found it obvious to use a pH adjusting agent (claims 99-101) because the concept of using such an agent in polishing compositions is clearly shown by Fang in order to produce a polishing composition having a specific pH. In other words, the use of a pH adjustor is well within the level of ordinary skill in order to produce a composition having the desired pH. It is the examiners position that use of conventional polishing additives, such as a surfactant and an organic acid (suspending agents defined by claims 102-103), would have been well within the level of ordinary skill in the art in order to adjust the properties of the composition sought. These conventional additives for noble metal polishing compositions are clearly shown by Dirksen et al.

With respect to the specific substrate (one comprising a noble metal layer and a dielectric layer), Moeggenborg et al. (100) states that the substrate can be any suitable substrate (column 4, lines 50-51) and contain a noble metal. This suggests to the skilled artisan that any known substrate can be polished and thus the polishing of a substrate comprising a noble metal layer and a dielectric layer would have been obvious to the skilled artisan because this type of substrate is known to be polished with an abrasive/oxidizer polishing slurry, as shown by Klein et al. The motivation for this combination is defined by Moeggenborg et al. (100) in the statement that states any suitable substrate can be polished. With respect to the selectivity, since the composition is the same and is used to polish the same substrate, these characteristics are expected and therefore obvious because the same polishing composition is expected to provide the same polishing characteristics to a substrate upon polishing.

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Claim 110 is rejected under 35 U.S.C. 103(a) as obvious over Moeggenborg et al. (100) in view of Fang (227) and Dirksen et al., alone or further evidenced by Moeggenborg et al. (116) and further in view of Beitel et al. (208).

Beitel et al. teaches in section [0013] that substrates based on an iridium oxide layer and a silicon dioxide layer (dielectric) are known to be polished with an abrasive polishing slurry.

With respect to the specific substrate (iridium oxide and dielectric), Moeggenborg et al. (100) states that the substrate can be any suitable substrate (column 4, lines 50-51). This suggests to the skilled artisan that any known substrate can be polished and thus the polishing of a substrate comprising iridium oxide and a dielectric would have been obvious to the skilled artisan because this type of substrate is known to be polished with an abrasive polishing slurry, as shown by Beitel et al. The motivation for this combination is defined by Moeggenborg et al. (100) in the statement that states any suitable substrate can be polished.

Applicant's arguments with respect to all the claims have been considered but are moot in view of the new ground(s) of rejection.

Claims 121-124 and 138-139 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Marcheschi whose telephone number is (571) 272-1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

12/14/06
MM.

Michael A. Marcheschi
Primary Examiner
Art Unit 1755